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EXAMINER

GEISEL, KARA E

ART UNIT PAPER NUMBER

2877

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,217

Applicant(s)

CHEN ET AL.

Examiner

Kara E Geisel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32,35 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20,22-28,30,31,35 and 36 is/are rejected.
- 7) ☒ Claim(s) 21 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed on April 8th, 2003 has been fully considered by the examiner.

Claim Objections

Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form. Claim 2 merely states that the radiation is ultraviolet, which is already disclosed in the parent claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 35 recites the limitation "said organic composition" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-20, 22-24, 26-27, 32, and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chauvette et al. (USPN 6,391,226), previously cited, in view of Hong (USPN 5,663,016), newly cited.

In regards to claims 1 and 26, Chauvette discloses a method for detecting wear on a substrate (column 3, lines 51-55) comprising coating a composition comprising a fluorescent compound (column 3, lines 40-42) on the surface of the substrate (column 3, lines 21-33), wherein the composition is selected from waxes, floor finishing compositions, sealants, and polymer compositions (column 5, lines 44-67), exposing the coated surface to wear, having a means to activate the fluorescent compound (column 4, lines 6-9), and detecting the presence or absence of color (column 4, lines 10-11). Chauvette discloses that the colors that are detected can be revealed by fluorescence (column 6, lines 20-21), or the emission of electromagnetic radiation, especially of visible light, stimulated in a substance by the absorption of incident radiation. Although Chauvette does not directly disclose that a radiation is used to excite fluorescence in the coating, it is very well known to use a radiation source to cause an item to fluoresce, and it would be obvious to one of ordinary skill at the time the invention was made to use a radiation source, such as an exciting light, in order to cause the fluorescent sensor in the coating to fluoresce. More specifically, it would be obvious to one of ordinary skill to use ultraviolet radiation to cause Coumarin to

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fluoresce (fluorescent compound disclosed in column 6, lines 36-39), because it is well known in the art that Coumarins fluoresce in the visible range when excited by ultraviolet light.

For example, Hong teaches using Coumarins as a fluorescent dye, because they can absorb ultraviolet light and emit visible light.

In regards to claim 2, it would be obvious that the radiation comprise ultraviolet light so that the Coumarin could be excited to fluoresce.

In regards to claim 3, the radiation is ultraviolet, which has a wavelength range from 200nm to 400nm.

In regards to claim 4, a method of detecting wear on a substrate is discussed above. Furthermore, the fluorescent sensor coumarin (column 6, lines 36-39) is known to emit visible light.

In regards to claim 5, a method of detecting wear on a substrate is discussed above. Furthermore, coumarin emits light having a wavelength from 400-750 nm.

In regards to claim 6, a method of detecting wear on a substrate is discussed above. Furthermore, detecting comprises visually observing the absence or presence of fluorescence (column 2, lines 49-62).

In regards to claim 7, Chauvette discloses that the composition is stable for at least one year (column 3, lines 14-20), and that the color of the composition is used to detect wear on a substrate (column 3, lines 51-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expose the surface to radiation after a predetermined period time to detect the wear on the substrate, and to do it before the composition loses it's ability to color under certain conditions.

In regards to claim 8, the substrate can comprise cement clay, stone, ceramic, polymer composite, or a combination thereof (column 5, lines 1-7).

In regards to claim 9, a method of detecting wear on a substrate is discussed above. Furthermore, the substrate can comprise vinyl or linoleum (column 5, lines 1-6).

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In regards to claim 10, a method of detecting wear on a substrate is discussed above.

Furthermore, the substrate comprises a floor (column 1, lines 9-10).

In regards to claim 11, it is well known for flooring to be placed in a dwelling, garage, hospital, store, restaurant, school, or office.

In regards to claim 12, a method of detecting wear on a substrate is discussed above.

Furthermore, although it is not disclosed that the substrate comprises an article such as a counter top, it is well known in the art that tile and stone can be used on a counter top, and counter tops also can be coated to avoid extensive wear on the surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the substrate comprise an article such as a counter top in order to determine the wear of the countertop by this method.

In regards to claim 13, a method of detecting wear on a substrate is discussed above.

Furthermore, although it is not disclosed that the substrate comprises an article such as furniture, it is well known in the art that tile and stone can be used in patio furniture, and patio furniture also can be coated to avoid extensive wear on the surface from weather. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the substrate comprise an article such as furniture in order to determine the wear of the furniture by this method.

In regards to claim 14, the method further comprises determining the color (or fluorescence) intensity (column 4, lines 10-11).

In regards to claims 15 and 27, the intensity of the fluorescence is correlated with the degree of wear on the coated surface (column 4, lines 10-11 and 51-55).

In regards to claims 16 and 35, a method of detecting wear on a substrate is discussed above.

Furthermore, the composition comprises a wax (column 5, lines 44-47).

In regards to claim 17, a method of detecting wear on a substrate is discussed above.

Furthermore, the coating composition comprises a floor finishing composition (column 2, lines 17-19).

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In regards to claim 18, the method further comprises coating a second composition on the coated surface prior to exposing the coated surface to wear (column 5, lines 3-7).

In regards to claim 19, a method of detecting wear on a substrate is discussed above. Furthermore, the method also comprises coating a first layer and a second layer on the coated substrate after coating the substrate with the coating containing the fluorescent compound (column 3, lines 43-51).

In regards to claim 20, a method of detecting wear on a substrate is discussed above. Furthermore, it is up to the user's discretion on how much of the substrate surface would be coated.

In regards to claim 22, a method of detecting wear on a substrate is discussed above. Furthermore, although Chauvette does not disclose what type of wear the substrate is exposed to, it is obvious that a floor would be exposed to pedestrian traffic.

In regards to claim 23, a method of detecting wear on a substrate is discussed above. Furthermore, if the tile and stone were used on a counter top, it would be obvious to one skilled in the art that wear would occur when exposing the counter top to repeated contact with other substrates, such a ceramic plates and marble cutting boards.

In regards to claim 24, a method of detecting wear on a substrate is discussed above. Furthermore, the method also comprises exposing a first area of the coated surface to radiation capable of exciting the fluorescent compound, exposing a second area to radiation capable of exciting the fluorescent compound (column 4, lines 38-46), comparing the intensity of the fluorescence of the first to the intensity of the second area (column 4, lines 46-47).

In regards to claim 32, Chauvette discloses a method for detecting coverage of a coating on a substrate (column 3, lines 51-55) comprising coating a composition comprising a fluorescent compound (column 3, lines 40-42) on the surface of the substrate (column 3, lines 21-33), wherein the composition is selected from waxes, floor finishing compositions, sealants, and polymer compositions (column 5, lines 44-67), affixing the composition to the substrate, having a means to activate the fluorescent compound

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(column 4, lines 6-9), and detecting the presence or absence of color (column 4, lines 10-11) to determine the extent of surface coverage by the coating composition (column 2, lines 49-62). Chauvette discloses that the colors that are detected can be revealed by fluorescence (column 6, lines 20-21), or the emission of electromagnetic radiation, especially of visible light, stimulated in a substance by the absorption of incident radiation. Although Chauvette does not directly disclose that a radiation is used to excite fluorescence in the coating, it is very well known to use a radiation source to cause an item to fluoresce, and it would be obvious to one of ordinary skill at the time the invention was made to use a radiation source, such as an exciting light, in order to cause the fluorescent sensor in the coating to fluoresce. More specifically, it would be obvious to one of ordinary skill to use ultraviolet radiation to cause Coumarin to fluoresce (fluorescent compound disclosed in column 6, lines 36-39), because it is well known in the art that Coumarins fluoresce in the visible range when excited by ultraviolet light.

For example, Hong teaches using Coumarins as a fluorescent dye, because they can absorb ultraviolet light and emit visible light.

In regards to claim 36, the fluorescent dye is essentially free of organosilicone (column 6, lines 25-39).

Claims 25, 28, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chauvette et al. (USPN 6,391,226), previously cited, in view of Hong (USPN 5,663,016), newly cited, as applied to claims 1-20, 22-24, 26-27, 32, and 35-36 above, and further in view of Hanneman (USPN 4,327,155), previously cited.

In regards to claims 25, 28, and 30, the combined method as disclosed above comprises a method for detecting wear on a substrate (column 3, lines 51-55) comprising coating a composition comprising a fluorescent compound (column 3, lines 40-42) on the surface of the substrate (column 3, lines 21-33), wherein the composition is selected from waxes, floor finishing compositions, sealants, and polymer compositions (column 5, lines 44-67), exposing the coated surface to wear, having a means to activate the

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fluorescent compound (column 4, lines 6-9), exposing the surface to ultraviolet radiation capable of exciting the fluorescent compound, and detecting the presence or absence of color (column 4, lines 10-11). Chauvette discloses that the colors that are detected can be revealed by fluorescence (column 6, lines 20-21), or the emission of electromagnetic radiation, especially of visible light, stimulated in a substance by the absorption of incident radiation. The method does not disclose comparing the measured fluorescence intensity with predetermined fluorescence intensity, such as the intensity from the time of first coating. However, it would be obvious to one of ordinary skill in the art to compare this as a means to signal when additional coating should be added (column 4, lines 51-55).

For example, Hanneman discloses a method of determining the degree of wear on a coated surface of a substrate, the coating on the substrate comprising a fluorescent compound, the method comprising exposing the coated substrate to radiation capable of exciting the fluorescent compound (column 3, lines 20-25), measuring the fluorescence intensity emitted from the coated surface (column 3, lines 25-31), and comparing the measured fluorescence intensity with a predetermined fluorescence intensity (column 3, lines 20-31). This is done in order to determine after a particular period of time if additional coating needs to be added to help prevent wear on the substrate itself (column 2, lines 5-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to compare the measured fluorescence intensity of the combined system with a predetermined fluorescence intensity as another means to determine if additional coatings need to be applied to the substrate to prevent wear on the substrate itself.

In regards to claim 31, the intensity of the fluorescence is correlated with the degree of wear on the coated surface (Chauvette column 4, lines 10-11 and 51-55).

Allowable Subject Matter

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Claims 21 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-20, 22-28, and 30-32 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed on June 2nd, 2003 regarding Chauvette (pages 11-14) have been fully considered but they are not persuasive. Chauvette does disclose that the sensor is adapted to become colored, **including colors revealed by fluorescence** (see column 6, lines 19-39). Fluorescence is defined as the emission of electromagnetic radiation, especially of visible light, stimulated in a substance by the absorption of incident radiation. Therefore, one skilled in the art would have been motivated by this teaching to use a suitable radiation, such as ultraviolet radiation, in order to stimulate this emission of electromagnetic radiation.

Furthermore, Coumarin is a very well known, and very widely used fluorescent dye (see additional prior art). It is preferably used because of the qualities that it is excited by ultraviolet light to emit visible radiation. And while the literature does suggest unsubstituted Coumarin emits little fluorescence, applicant suggests that Coumarin is a suitable dye to use (specification page 6, lines 5-13) as a fluorescent indicator.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Meguiar (USPN 4,444,701), Maruyama et al. (USPN 4,923,726), Flores et al. (USPN 5,144,773), and Wallgren et al. (US Pub 2003/0012599).

Meguiar discloses a method of detecting the coverage of a layer on a substrate comprising coating a composition comprising a fluorescent compound, such as coumarin, on the surface of a substrate,

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exposing the coated surface to wear, exposing the coated surface to ultraviolet radiation capable of exciting the fluorescent compound, and detecting the presence or absence of fluorescence.

Maruyama discloses incorporating a fluorescent dye in a layer that is capable of absorbing visible or ultraviolet light and emitting visible light, such as Coumarin.

Flores discloses a method of detecting wear on a substrate comprising coating a composition comprising a fluorescent compound on the surface of a substrate, exposing the coated surface to wear, exposing the coated surface to ultraviolet radiation capable of exciting the fluorescent compound, and detecting the presence or absence of fluorescence.

Wallgren discloses a method of detecting wear on a substrate comprising coating a composition comprising a fluorescent compound on the surface of a substrate, exposing the coated surface to wear, exposing the coated surface to ultraviolet radiation capable of exciting the fluorescent compound, and detecting the presence or absence of fluorescence.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is 703 305 7182. The examiner can normally be reached on Monday through Friday, 8am to 4pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703 308 4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9318 for regular communications and 703 872 9319 for After Final communications. For inquiries of a general nature, the Customer Service fax number is 703 872 9317.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 1782.

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F.L. Evans
Primary Examiner
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K.G.

KEG
July 31, 2003